

Application 10/733,664
Preliminary amendment dated August 11, 2006

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in this application:

Listing of Claims:

1. (currently amended) A fused silica extraction capillary having an internal solid phase extraction surface that binds ~~an analyte~~ a biomolecule, wherein at least some portion of the capillary is coiled. ~~at a bend radius of less than 3 cms.~~
2. (original) The extraction capillary of claim 1, wherein the capillary comprises synthetic fused silica and a polymer coating.
- 3-6. (cancelled)
7. (original) The extraction capillary of claim 2, wherein the polymer coating comprises polyimide.
8. (currently amended) The extraction capillary of claim 1, wherein the ~~analyte is a~~ biomolecule is a protein or a nucleic acid.
9. (currently amended) The extraction capillary of claim ~~8~~ 1, wherein the biomolecule is a ~~protein or polynucleotide, selected from a group consisting of a multi-protein complex, a~~ multi-protein complex bound to a nucleic acid, a virus, and a cell.
10. (original) The extraction capillary of claim 1, wherein the extraction surface comprises an immobilized metal ion.
11. (original) The extraction capillary of claim 1, wherein the extraction surface comprises a protein.
- 12-14. (cancelled)
15. (currently amended) An open capillary channel device comprising ~~a the~~ a fused silica extraction capillary of claim 1, having a first end connected to a pump for pumping liquid and gas, and a second end, the pump being a syringe pump, pressurized container, centrifugal pump or electrokinetic pump.

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16. (original) A multiplexed solid phase extraction instrument comprising a plurality of the extraction devices of claim 15 arrayed for the parallel processing of multiple samples.
17. (currently amended) A method for molecular open tubular solid phase extraction, the method comprising the steps of
 - a) adsorbing ~~analyte molecules~~ biomolecules in a sample solution to the extraction surface of a fused silica extraction capillary tubing of claim 1, the capillary tubing having a total capillary volume; and
 - b) desorbing a substantial portion of the ~~analyte molecules~~ biomolecules from the extraction surface with a desorbent liquid passed through the capillary channel.
18. (currently amended) The method of claim ~~18~~ 17, wherein the ~~analyte molecules~~ biomolecules are desorbed with a Tube Enrichment Factor of at least 1.
19. (currently amended) The method of Claim ~~18~~ 17, wherein the direction of passage of the desorption solution through the column reversed during the desorption step.
20. (currently amended) The method of Claim ~~18~~ 17, wherein a wash solution is passed through the capillary channel between steps (a) and (b).
- 21-22. (cancelled)
23. (currently amended) The method of Claim ~~18~~ 17, wherein the extraction surface has an affinity binding agent bound thereto, and the affinity binding agents is:
 - a) a chelated metal having a binding affinity for a biomolecule-~~analyte~~;
 - b) a protein having a binding affinity for a protein-~~analyte~~;
 - c) an organic molecule or group having a binding affinity for a protein-~~analyte~~;
 - d) a sugar having a binding affinity for a protein-~~analyte~~;
 - e) nucleic acid having a binding affinity for a protein-~~analyte~~;
 - f) a nucleic acid or a sequence of nucleic acids having a binding affinity for a nucleic acid-~~analyte~~; or
 - g) a small molecule binding agent having a binding affinity for a small molecule ~~analyte~~.

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24. (cancelled)

25. (currently amended) The method of Claim ~~18~~ 17, wherein the ~~analyte molecules~~
biomolecules are desorbed with a Tube Enrichment Factor from within a range from 1 to
400.

26. (cancelled)

27. (newly introduced) The method of claim 17, wherein the biomolecule is a protein or a
nucleic acid.

28. (newly introduced) The method of claim 17, wherein the biomolecule is a multi-protein
complex or a multi-protein complex bound to a nucleic acid.

29. (newly introduced) The method of claim 17, wherein the biomolecule is a virus or a cell.